*Research Article*

# Testing Models Regarding Online Shopping Addiction

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## Abstract

The aim of this study is to examine why adults prefer online shopping and which factors lead to online shopping addiction. The study has been carried out using the screening model, a quantitative research method. Certain variables in the study have been identified in light of the qualitative findings, with theoretical models being developed in the first part of the study. These models are then tested quantitatively in the second part of the study. The data has been collected from 105 adults using the snowball sampling method. Path analysis has been conducted to analyze the data. After obtaining the variables regarding online shopping (i.e., ease of use, usefulness, pleasure, stress, and depression), several models were developed in consideration of the related literature. In Model-I, the variables of stress, depression, ease of use, and usefulness predict hedonic shopping, while in Model-II, the variables of stress, ease of use, usefulness, and hedonic shopping predict depression. Meanwhile, the paths have been determined to be from stress to hedonic shopping in Model-1 and from stress to depression in Model-II.

## Keywords

Addiction • Depression • Hedonic • Online shopping • Stress • TAM

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Technology, especially the Internet, can be said to shape social life. In addition, the speed of this change differs from one society to another. One area where social life has changed is the way shopping is done. In recent years, a considerable amount of shopping has been transferred to the Internet environment. Today, companies are aware that existing and serving just in real life are not enough. Online shopping, or e-trade, is defined as the buying and selling of products using the Internet (Bidgoli, 2002; Shih, 2004). The term *business-to-consumer*, one of the categories of e-trade, refers to businesses that sell a wide range of products in electronic environment thanks to the virtual store applications that have appeared in line with the increased use of computers and rapid developments in Internet technologies (Chang, Lee, Dillion, & Chang, 2001). Recent years have seen an increase not only the number of individuals shopping using the Internet but also in the number of firms selling goods online (Kalakota & Whinston, 1997; Vijayasarathy, 2004). When taking supply and demand into account, this increase is considered normal. According to a report by the UCLA Center for Communication Policy (2001), online shopping is also one of the most important activities among the reasons for Internet use (Li & Zhang, 2002).

Developments in Internet technologies help reach individuals in different geographical locations (Kurnia & Chien, 2003). Online shopping offers such great benefits, especially with how it saves time and simplifies shopping (Park, Perosio, German, & McLaughlin, 1996). Online shopping reduces transaction costs and has advantages for consumers (Javadi, Dolatabadi, Nourbakhsh, Poursaeedi, & Asadollahi, 2012). According to the results from an online shopping survey conducted in 11 countries, consumers in Turkey, France, and the UK stated the general reasons for preferring online shopping to be online campaigns (Eroğlu, 2014). Also, online shopping allows one to look for a lower price and compare products, as well as providing advantages to consumers when making their final decisions (Günüç & Doğan Keskin, 2016; Haubl & Trifts, 2000). Internet users stated preferring online shopping due to its wide range of products, competitive prices, and convenience (Ernst & Young, 2000; Günüç & Doğan Keskin, 2016). In addition, how it provides customers with more campaigns, promotions, and products at a discount makes online shopping more favorable and attractive for some people. Despite certain safety-related concerns, the use of online shopping has gradually increased in recent years (Australian Retailers Association, 2000; Morgan, 2000; Park et al., 1996). However, whether the applications provided by the Internet result in online shopping addiction (OSA) (Davis, 2001; Young, 1996) or whether people prefer online shopping because it saves time and is easy to use (i.e., non-addictive but appears so) is a matter of research. On the other hand, certain usages of online shopping can appear to turn into problematic behaviors such as OSA or compulsive buying. The behavior of online shopping is on the edge of becoming a substitute for traditional shopping (Akram, Hui, Khan, Hashim, & Saduzai, 2017).

In addition, compulsive buying can be classified as a mood, as an obsessive compulsive disorder, and as an addiction (Black, 2007). In order to define the behavior of compulsive buying, the best possible term is addiction (Clark & Calleja, 2008). Compulsive buying, as opposed to obsessive compulsive disorder (OCD) or mood disorder, can be called an addiction due to its similarities with pathological gambling (Lawrence, Ciorciari, & Kyrios, 2014). Compulsive buying, oniomania, pathological buying, compulsive buying disorder, and buying addiction are different terminologies that describe the same phenomenon. According to this phenomenon, individuals lose control over their buying behavior (Trotzke, Starcke, Müller, & Brand, 2015). Although compulsive shopping was first described in the 19th century, interest in it has increased over the last 20 years. Compulsive buying disorder is characterized by impulsive and compulsive behaviors with impaired social, personal, and vocational functioning (Karakuş & Tamam, 2017). With the Internet becoming widespread in Turkey since the 2000s, case studies on online shopping addiction have begun to occur in the literature.

## Online Shopping Addiction (OSA)

Debates are still ongoing about how to classify OSA, as every extreme behavior is not an addictive one. Therefore, defining and classifying behavioral addictions is very important (Benbir, Poyraz, & Apaydın, 2014). Compulsive buying is defined as compulsive thoughts or impulses to buy unnecessary items despite the negative consequences. Behavioral addiction is the state of being unable to resist impulses and motivations that damage the self or one's environment (McElroy, Satlin, Pope, Keck, & Hudson, 1991). Previously, the concept of addiction has been associated directly with substance abuse, yet behaviors such as gambling, video games, shopping, compulsive buying, and Internet use have also frequently been considered in studies as behavioral addictions (Black, 1996; Blanco, Moreyra, Nunes, Sáiz-Ruiz, & Ibáñez, 2001; Gunuc, 2013; Günüç & Doğan, 2013; Gunuc & Kayri, 2010; Griffiths, 1997, 2008; Ko et al., 2009; Porter, Starcevic, Berle, & Fenech, 2010).

Bleuler (1930) and Kraepelin (1915) were the first researchers to clinically define compulsive buying disorder (CBD). CBD is characterized by excessive shopping cognitions and buying behaviors that cause distress or impairment (Black, 2007; Günüç & Doğan Keskin, 2016). Uncontrolled shopping is defined as an irresistible and repetitive desire to buy (which leads to personal and family-related difficulties) and as a passion for excessive buying (which reduces stress). The behavior of compulsive buying is associated with credit card abuse and post-purchase regret (Korur & Kimzan, 2016). Personal factors and attitudes towards advertising also have an impact on tendencies for compulsive buying. However, compulsive buyers have high levels of impulsivity, interest in fashion, and positive attitudes toward money (Yüksel & Eroğlu, 2015).

In the American Psychological Associations' (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM)-III, CBD has been included under impulse control disorders that cannot be named any other way; moreover, CBD is also found in DSM-5 (APA, 2013). Several studies have reported CBD to be connected to addictive disorders (Krych, 1989), obsessive compulsive disorders (Hollander, 1993), and affective disorders (Lejoyeux, Ades, Tassain, & Solomon, 1996), and to have comorbidity particularly with affective disorder (Black, Monahan, & Gabel, 1997; Koran, Bullock, Hartston, Elliott, & D'Andrea, 2002), anxiety (McElroy, Keck, Pope, Smith, & Strakowski, 1994; Schlosser, Black, Repertinger, & Freet, 1994), substance-abuse disorders (Black, Repertinger, Gaffney, & Gabel, 1998; Christenson, Faber, & Mitchell, 1994), eating disorders (Koran et al., 2002; McElroy et al., 1994), and other impulse control disorders (Black, 2007).

The criteria for diagnosing compulsive buying (McElroy et al., 1994) are: (a) over-engagement in buying and shopping or related behaviors and motivations that include at least one of the following: i) Being unreasonably engaged in buying that is frequently and unbearably disturbing; ii) purchasing more than one can afford, buying unnecessary things, or spending more time than was planned on shopping; (b) over-engagement in shopping, related incentives, or behaviors that lead to remarkable stress, consume time, damage social or professional functions, or cause financial problems; and (c) the behavior of buying or shopping excessively does not occur only in periods of mania or hypomania.

Most clinical research reports that age and gender are factors that influence shopping addiction. Accordingly, women are claimed to shop more (McElroy et al., 1994). Some researchers have indicated that CBD first occurs in one's early 20s or at the end of adolescence (Christenson et al., 1994; Koran et al., 2002; Schlosser et al., 1994), while others have stated CBD to occur in one's mid-30s (McElroy et al., 1994). Studies reveal its rate of prevalence to range from 2-8%. Although compulsive buying has been predicted to increase gradually from one generation to the next (Roberts, 1998), no scientific evidence in the last decade has demonstrated any significant increase in its prevalence (Black, 2007).

Internet addiction separates into two addictions: generalized Internet addiction (GIA) and specific Internet addiction (SIA) (Davis, 2001). GIA relates to a multidimensional overuse of the Internet, whereas SIA is characterized by the overuse of one specific Internet application. The applications used addictively most frequently are social network sites, online gaming, cybersex, online gambling, and online shopping (Brand, Laier, & Young, 2014; Trotzke et al., 2015; Young, Pistner, Mara, & Buchanan, 1999). Online shopping is considered to be an SIA as it emphasizes online buying behavior in two ways: need-focused buying behaviors and

on-demand buying behaviors (Kindermann, 2015). In addition, the perceived benefits and risks in online shopping affect attitudes toward online shopping (Tingchi Liu, Brock, Cheng Shi, Chu, & Tseng, 2013). Online buying is further triggered by a quick purchasing process, easy access to products, and absence of any need to hand-carry products (Chen & Zhang, 2015; Jeffrey & Hodge, 2007).

## Causes and Treatment of OSA

Most studies have focused only on traditional shopping, so online shopping has remained ignored (Akram et al., 2017). The reasons why people shop online can be said to include such factors as ease of searching, reasonable prices, variety, time, availability, entertainment, promotions, and incentives (Günüç & Doğan Keskin, 2016; Khatibi, Haque, & Karim, 2006). Online shopping facilitates shopping not only by allowing consumers to compare shopping without dependency on time or place but also by providing rich information about products and services (Archer & Yuan, 2000; Günüç & Doğan Keskin, 2016; Kim & Kim, 2004; Levy & Weitz, 2001). In addition, consumers have different characteristics (classified as pragmatist and hedonist) that can influence their perceptions and online shopping behaviors (Wolfinbarger & Gilly, 2001). Hedonist consumers have experiential shopping behaviors. Nowadays, online shopping is done through the Internet using smart phones, computers, and social media applications such as Instagram. Online buyers may have certain online shopping behaviors that are ill-conceived and cause impulsivity (Faridathalla & Hatta, 2016). Impulse buying and hedonic motivation in online shopping have an important influence on online buyers' behaviors (Ozen & Engizek, 2014).

Utilitarian and hedonic factors are two important factors affecting online shopping intentions (Cheema, Rizwan, Jalal, Durrani, & Sohail, 2013). Both utilitarian and hedonic attitudes influence buyers' motivations for online shopping (Monsuwé, Dellaert, & Ruyter, 2004). Hedonist consumers shop not only to collect information but also to experience such feelings as excitement, entertainment, arousal, humor, festiveness, avoidance, fantasy, and adventure (Günüç & Doğan Keskin, 2016; Monsuwe, Dellaert, & De Ruyter, 2004). In addition, individuals' purchase choices can be said to be influenced by the psychological factors of motivation, perception, learning, beliefs, and attitudes (Kotler & Armstrong, 2000).

Compulsive buying is defined as chronic and repetitive buying that becomes a primary response to negative events or feelings (O'Guinn & Faber, 1989). Compulsive buying is likely to turn into addictive buying when the need exists to spend money constantly to soothe stress and anxiety (Günüç & Doğan Keskin, 2016; Johnson & Attmann, 2009). In the case of a depression that results in spending lots of time shopping due to feeling intense unhappiness, the behavior of buying is reported to have an antidepressant effect, and many patients with symptoms of depression are observed

to demonstrate the behavior of uncontrolled buying (Lejoyeux et al., 1996). In addition, those with higher levels of anxiety and stress regarding monetary issues are more likely to demonstrate the behavior of compulsive buying (Roberts & Jones, 2001).

The products that individuals with CBD typically buy are shoes, CDs, jewelry, ornaments, cosmetics, and household items (Christenson et al., 1994; Miltenberger et al., 2003; Schlosser et al., 1994). Compulsive buying leads to serious consequences for individuals, which can greatly influence their environment and society. Depression, anxiety, and low self-esteem can also influence the compulsive buyer and his or her personal relations (Roberts & Jones, 2001). Compulsive buying is considered to rapidly improve anxiety (Valence, d'Astous, & Fortier, 1988). However, regular compulsive buying can lead to massive debt (58.3%), failure to cope with payments (41.7%), criticism from acquaintances (33.3%), judiciary and financial consequences (8.3%) (Christenson et al., 1994). Compulsive buying obviously influences all individuals in a society (Roberts & Jones, 2001). Stress, anxiety, and depression are major motives for compulsive shopping (Workman & Paper, 2010). Buyers' high stress, depression, and anxiety levels may cause compulsive shopping as a way to escape these negative feelings (Yüksel & Eroğlu, 2015).

No standard treatment can be stated for CBD. Psychopharmacology, cognitive-behavior therapy, bibliotherapy, financial counseling, and marital therapy are used to treat CBD; on the other hand, studies on psychopharmacological treatments have revealed varying results (Black, 2007). Despite the large number of studies in the literature on traditional shopping and purchasing, studies on online shopping are rare. Therefore, investigations into the factors affecting online buying behavior are limited (Chen & Zhang, 2015). According to a study of consumers' purchasing behavior in online food shopping, buying more has no positive effect on consumers' long-term or short-term mental status (Whang & Tsai, 2017).

## The Technology Acceptance Model and Its Relation to OSA

Davis (1989) developed the Technology Acceptance Model (TAM) in order to explain the behavior of computer technology usage. TAM is one of the theories used most effectively and prevalently in e-trading (Tong, 2010). TAM is basically made up of two main factors: perceived usefulness and perceived ease of use (Davis, 1989). Perceived usefulness and perceived ease of use play an important role in determining individuals' attitudes towards the use of information and technology systems (Legris, Ingham, & Collerette, 2003). Online shopping has become more and more popular (Tong, 2010), and TAM has been applied prevalently within the context of online shopping (Bruner & Kumar, 2005).

TAM has been widely adopted in many studies (Harn, Tanakinjal, Sondoh, & Rizal, 2014) and is a basis for examining buyers' online-shopping behavior (Cheema

et al., 2013; Ha & Stoel, 2009). Many studies have shown that TAM can explain behavior and intended behavior (Eroğlu, 2014; Sendecka, 2006).

Perceived usefulness and perceived ease of use affect technology use. A number of studies have used the TAM model to test online shopping intentions (Hsu & Chang, 2013; Van der Heijden, Verhagen, & Creemers, 2003). Perceived usefulness is an individual's perception that using a new system will help one achieve gains in work performance, and perceived ease of use is an individual's perception of the lack of cost or effort in adopting a new system or technology (Cheema et al., 2013). Perceived usefulness has a significant and positive impact on buyers' intention to shop online (Monsuwé et al., 2004).

As the online shopping industry grows, more and more buyers engage in online shopping. Despite this growth, very few studies have explored the underlying causes of this phenomenon (Liao, To, Wong, Palvia, & Kakhki, 2016). Therefore, this study aims to examine why adults prefer online shopping and the factors that lead to online shopping addiction.

## Method

### Research Design

This study uses the screening model, one of the methods of quantitative research. The screening model describes an existing situation.
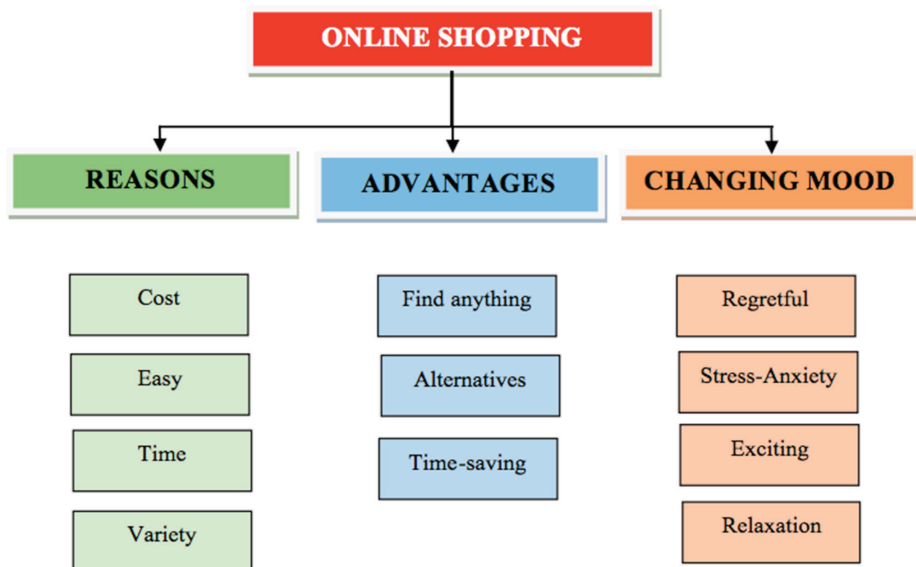


*Figure 1.* Main themes regarding online shopping (Günüç & Doğan Keskin, 2016).

Gunuc and Dogan Keskin's (2016) study determined the reasons for online shopping as: cost, convenience, time, and variety. During or after the online shopping process, negative and positive emotions are experienced such as regret, stress/anxiety, excitement, and relaxation. The researchers found that the emotions of happiness, relaxation, and pleasure involved in emotional state changes also at the same time relate to the concept of hedonic shopping. In this context, the affective factors of online shopping addiction are: hedonic impulses (pleasure, relaxation, happiness, fun); motivational impulses such as cheap products, diversity, comparisons, and promotions; technological factors such as ease of use and usefulness; and psychological factors such as stress and boredom.

This study has determined certain variables and developed theoretical models in the light of Gunuc and Dogan Keskin's (2016) study. Afterwards, these models were then tested quantitatively.



*Figure 2*. Paths determined in relation to Model-I & Model-II.

**Model-I and Model-II.** As a result of the qualitative study, the relationships among variables were defined using certain models. However, only two of the models (see Figure 2) were confirmed. Scientific studies have revealed that stress negatively affects human health (Schneiderman, Ironson, & Siegel, 2005). Stress is also a significant factor in addictions like substance abuse (Pilowsky, Keyes, & Hasin, 2009; Simmons Havens, Whiting, Holz, & Bada, 2009; Siqueira, Diab, Bodian, & Rolnitzky, 2000). Strong evidence exists in regards to the causes of episodic stress playing a causal role in most cases of major depression (Hammen, 2005). The existence of a strong relationship between stressful life events and major depression is a well-known fact. Most studies conducted over the relationship between major depression and stressful life events have revealed no differences between the first episode and any recurrences (Hammen, 2005). The related literature reports that a number of patients with symptoms of depression have been observed to demonstrate uncontrolled buying behaviors (Lejoyeux et al., 1996) and that individuals with a high level of anxiety and stress regarding monetary issues are more likely to demonstrate the behavior of compulsive buying (Roberts & Jones, 2001). In consideration of all these, whether depression causes hedonic shopping addiction or develops as a result

of family and personal problems due to hedonic shopping addiction (especially as a result of shopping expenditures) has become an issue of concern. Thus, the qualitative findings provide certain clues regarding the likelihood for these two situations.

Perceived ease of use and perceived usefulness are fairly important in determining individuals' attitudes regarding the use of information and communication technologies (Legris et al., 2003; Moon & Kim, 2001). Pleasure is one of the basic factors in online shopping (Hassanein & Head, 2007), and perceived usefulness has been found to have a rather large influence on shopping (Koufaris, 2000). Therefore, considering the qualitative findings of the present study, ease of use and usefulness in both models have been revealed to be among the significant factors causing hedonic shopping addiction.

As can be seen in Figure 2, the most important difference regarding the developed models is whether hedonic shopping addiction causes depression or vice versa.

### Sample

The participants of the study are 105 adults who frequently shop online. The study uses snowball sampling, which is a non-probability sampling method. The snowball sample, or chain sample, is especially influential in determining which individuals can act as a rich source of information about the research problem. The process continues with the questions of "Who would be most knowledgeable about this subject?" and "Who do you suggest I interview regarding this subject?" (Patton, 1987). As the process goes on, the obtained names grow just like a snowball. After a while, certain names always become prominent, and the number of individuals the researcher needs to interview will start to decrease. The research sample has been formed separately for the qualitative method and for the quantitative method. As regards the collection of quantitative data, 105 adults were reached using the snowball sampling method. Of all the participants, 80% are female (84), and 20% are male (21). Participants' ages range from 22 to 55.

### Data Collection Tools

For the purpose of collecting quantitative data in the study, quantitative data collection tools have been applied separately. The study uses the Perceived Stress Scale to determine participants' levels of stress, the Beck Depression Scale to determine their levels of depression, the Hedonic Shopping Scale to determine their addiction to hedonic shopping, and the Ease of Use and Usefulness Questionnaire to determine their levels of online-shopping acceptance.

**Hedonic Shopping Scale.** The Hedonic Shopping Scale, developed by Babin, Darden, and Griffin (1994), is made up of questions to measure participants' attitudes towards hedonic shopping. An 11-point Likert-type scale has been adapted into Turkish by Aydın (2009) and graded from "I Completely Disagree" to "I Completely

Agree." Regarding the scale's reliability and validity study, Cronbach's alpha of reliability was calculated as .90 by Aydın, while the current study finds it to be .914.

**Perceived Stress Scale.** The Perceived Stress Scale (PSS), developed by Cohen, Kamarck, and Mermelstein (1983), is a self-report scale that aims to measure respondents' levels of stress based on the extent to which a respondent regards one's life to be unpredictable, uncontrollable, and over-loaded. Monroe (2008) stated that measurement methods for measuring perceived stress result in fewer measurement errors than other methods that measure life events. PSS was adapted into Turkish by Yerlikaya and İnaç (2007), and their reliability and validity study of the scale revealed Cronbach's alpha to be .840. The current study calculates it as .894.

**Beck Depression Scale.** The Beck Depression Scale (BDS) was developed by Beck, Ward, Mendelson, Mock, and Erbaugh (1961), Beck and Beamesderfer (1974), and Beck (1975, 1984) in relation to the emotional, somatic, cognitive, and motivational symptoms most frequently observed in depressed patients. The purpose of the scale is to objectively determine patients' levels of depression symptoms. The BDS is a scale that focuses mostly on the cognitive and emotional symptoms of depression and less on the somatic ones (only loss of appetite, loss of weight, and decrease in libido). The scale was adapted into Turkish by Hisli (1988; 1989), whose reliability analysis of the scale was conducted using item analysis and split-half techniques; its correlation coefficients were calculated as $r = .80$ and $r = .74$, respectively. BDS is a self-report scale made up of 21 items. The items on the scale are scored from 0 to 3. A higher score on the scale refers to a higher level of depression symptoms. In this study, Cronbach's alpha for the scale has been found as .895.

**Ease of Use and Usefulness (EUU) Questionnaire.** The researchers developed the EUU Questionnaire after determining the factors of ease of use and usefulness as a result of the qualitative findings. Six items were developed for the measurement tool, and three experts were asked for their views on the content validity and face validity of the measurement tool to finalize the items. As this measurement tool was not developed as a scale, we did not test its construct validity. However, in order to prove the validity and reliability, item-total correlation coefficients were examined, and a significant difference was found between each item and the total score ($p < .05$). In addition, Cronbach's alpha for the measurement tool has been calculated as .822. The results of all these analyses reveal that the measurement tool produces a total score that can be used as a valid variable.

## Data Analysis

Path analysis, one of the techniques used in structural equation modeling, has been used to analyze the quantitative data. This analysis, which is a statistical method similar to multiple regression analysis, allows researchers to evaluate the relationships between observed variables and latent variables, as well as to develop and test theoretical models

(Hoyle, 1995). Path analysis determines the path in relation to the model. In this analysis, the predictor variable, or affecting variable, is called the exogenous variable, while the predicted variable, or affected variable, is called the endogenous variable (Kline, 2011). If a determined path from the exogenous variable to the endogenous variable exists alongside another mediator variable, then an indirect effect occurs; if not, a direct effect occurs. Path analysis obtains the path coefficients (β, known as the standardized regression coefficients) in relation to the developed model. The amount of total effect regarding the model consists of the sum of direct and indirect effects. Path analysis has two models: the measurement model and the structural model. The measurement model covers the model that demonstrates the correlations between the observed and latent variables. Testing the measurement models is one of the assumptions of path analysis. The structural model, however, covers the correlations between the model's latent variables. In this study, the measurement models regarding each measurement were confirmed before testing the structural models as an assumption of path analysis.

The analyses use the package software programs SPSS 18.0 and Lisrel 8.5 (Jöreskog & Sörbom, 2001). A number of paths have been determined and the models tested in consideration of the related literature and qualitative findings obtained in this study.

## Findings

This section examines the assumptions regarding the analyses and presents the findings. The qualitative findings in Gunuc and Dogan Keskin's (2016) study were evaluated to determine the variables. Then the data were collected and models created.

### Examining the Assumptions

This study uses path analysis, a multivariate statistical method, for analyzing the quantitative data. The assumptions were examined after the data had been prepared. For this reason, the missing data, outliers, and normality were examined prior to the analyses (Hutcheson & Sofroniou, 1999; Kline, 2009; Tabachnick & Fidell, 2007).

The qualitative findings in the study help determine individuals' purposes for online shopping, their reasons for preferring online shopping, and the advantages and disadvantages of online shopping. In particular, examining the sub-themes has revealed the concepts related to online shopping to be ease of use, usefulness, pleasure (hedonic), stress, and depression.

### Causal Relationships between Hedonic Shopping Addiction and Other Variables

The developed models were tested using path analysis in consideration of the related literature and the obtained qualitative findings. However, only two models have been confirmed (see Figure 3). In Model-I, stress, depression, and EUU predict hedonic

shopping, while in Model-II, stress, EUU, and hedonic shopping predict depression. On the other hand, the determined paths are from stress to hedonic shopping for Model-I and from stress to depression in Model-II. However, these paths in Model-I and Model-II are not confirmed in the results of the analysis. For this reason, these paths have been excluded. When calculating the path coefficients, the path coefficients and paths related to the two models were obtained as shown in Figure 3.

In Model-I and Model-II, the exogenous variables are stress and EUU, while the endogenous variables are depression and hedonic shopping. However, Model-II finds the direct effect path to be between EUU and hedonic shopping, whereas Model-I finds the indirect effect path to be between EUU and hedonic shopping. Namely, the variable of EUU in Model-I predicts (affects) the variable of hedonic shopping with depression as the mediator variable.
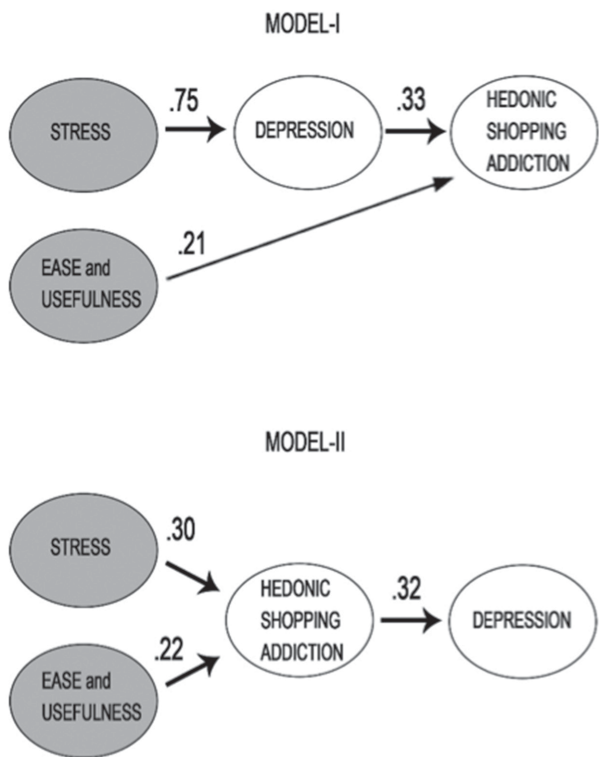


Figure 3. Path coefficients and paths related to Model-I and Model-II.

If path coefficients are less than .10, they have a small effect; if they are between .10 and .50, they have a medium effect; and if they are greater than .50, they have a large effect (Cohen, 1988; Suhr, 2008). In order to examine the significance of path coefficients,

*t*-values have been taken into account (Vaughan, 2001). The *t*-values regarding all the items and latent variables in both models are found to be greater than 1.96 ($p < .05$). When examining the direct and indirect effects regarding Model-I and Model-II, remarkable differences are seen to exist in certain path coefficients. In Model-I, a 1-unit change in the variable of stress results in a change of .75 for the variable of depression ($\beta = .75$, $t = 5.39$), and a 1-unit change in the variable of depression results in a change of .33 in the variable of hedonic shopping ($\beta = .33$, $t = 2.92$). In addition, a 1-unit change in the variable of EUU (an exogenous variable like stress) results in a change of .21 for the variable of hedonic shopping ($\beta = .21$, $t = 1.99$). In Model-I, stress predicts depression at the level of large effect. The other direct effects have a medium effect, meanwhile. On the other hand, stress and EUU in Model-II predict hedonic shopping at the level of medium effect ($\beta = .30$, $t = 2.78$; $\beta = .22$, $t = 2.06$, respectively), while hedonic shopping predicts depression at the level of medium effect ($\beta = .32$, $t = 2.79$).

When calculating the fit indices regarding the models, the Chi-square values are found to be $\chi_1^2 = 1564.32$ for Model-I and $\chi_2^2 = 1596.42$ for Model-II; the degrees of freedom are $df_1 = 1072$ for Model-I and $df_2 = 1072$ for Model-II. When examining Table 1, some fit indices are seen to be perfect/good fit and some to be poor fit. The value for $\chi^2 / SD$ for the two models is found to be particularly good. Based on the index values, one can state that the two models have been confirmed.

Table 1
*Evaluating the Fit Indices for Model-I and Model-II*

| Index | Model I | Model II | Perfect fit | Good or acceptable fit | Model-I Decision | Model-II Decision |
|---|---|---|---|---|---|---|
| $\chi^2 / SD$ | 1.46 | 1.49 | $\chi^2 / SD \leq 2$ | $\chi^2 / SD \leq 3$ | Perfect fit | Perfect fit |
| *RMSEA* | .066 | .069 | $RMSEA \leq .05$ | $RMSEA \leq .08$ | Good fit | Good fit |
| *RMR* | .071 | .099 | $RMR \leq .05$ | $RMR \leq 0.08$ | Good fit | Poor fit |
| *SRMR* | .091 | .14 | $RMR \leq .05$ | $RMR \leq 0.08$ | Poor fit | Very Poor fit |
| *NFI* | .79 | .78 | $NFI \geq .95$ | $NFI \geq .90$ | Poor fit | Poor fit |
| *NNFI* | .90 | .89 | $NNFI \geq .95$ | $NNFI \geq .90$ | Good fit | Poor fit |
| *CFI* | .91 | .90 | $CFI \geq .95$ | $CFI \geq .90$ | Good fit | Good fit |
| *GFI* | .61 | .61 | $GFI \geq .95$ | $GFI \geq .90$ | Very Poor fit | Very Poor fit |

$\chi_1^2 = 1564.32$; $SD_1 = 1072$; $R_1^2 = .14$
$\chi_2^2 = 1596.42$, $SD_2 = 1072$; $R_2^2 = .10$

Criteria References: (Brown, 2006; Hooper, Coughlan, & Mullen 2008; Hu & Bentler, 1999; Kline, 2011; Tabachnick & Fidell, 2007; Thompson, 2008)

We examined not only the indices regarding the models but also the total effects, and the values related to Model-I are seen to be much better, though without many remarkable differences. Therefore, Model-I can be said to be the best structure and path regarding these variables. Meanwhile, the variance explained by Model-I has been calculated as $R_1^2 = .14$, while the variance explained by Model-II has been calculated as $R_2^2 = .10$. In this respect, Model-I explains 14% of the variance, while Model-II explains 10%.

The most important difference in defining the paths of the two models is between the variables of hedonic shopping and depression. In other words, questions about whether depression influences shopping addiction or whether shopping addiction leads one to depression are tested by the two models. In this respect, one can state causal relationships to exist between stress and depression, as well as between depression and hedonic shopping addiction. In other words, stress and depression can be described as factors and paths: stress causes depression and depression causes hedonic shopping addiction. The factor of ease of use and usefulness is one of the causes of hedonic shopping addiction, and this factor can be said to contribute to the development of addiction.

### Discussion and Conclusion

Many studies have focused solely on online impulse shopping without addressing its advantages and disadvantages (Akram et al., 2017). In the research of Gunuc and Dogan Keskin (2016), examining the sub-themes revealed concepts related to online shopping such as ease of use, usefulness, pleasure, stress, and depression. After obtaining these variables, several models were developed in consideration of the qualitative findings and the related literature. In these models, which variables predict online shopping addiction and which variables have causal relationships with online shopping addiction were tested by reaching a greater number of participants. Among the models developed, only two have been confirmed (Model-I & Model-II).

In Model-I, stress, depression, and EUU influence hedonic shopping addiction, while in Model-II, stress, EUU, and hedonic shopping addiction influence depression. In addition, an indirect-effect path was found between EUU and hedonic shopping in Model-I, while this path was found to be a direct effect in Model- II. The most important difference in determining the two models' paths was whether depression influenced hedonic shopping addiction or whether hedonic shopping addiction led individuals into depression. These questions were tested with the two models. According to the index values, even though the two models have been confirmed, the best structure and path may be Model-I because of its higher values.

According to the confirmed Model-I, stress influences depression while depression influences/causes hedonic shopping addiction. In addition, EUU influences hedonic shopping addiction. While determining a diagnosis, these variables can also be regarded as risk factors and taken into account in the process of treating shopping addiction. Moreover, in the process of treating individuals exposed to depression and/ or stressful life experiences, their likelihood of becoming addicted to online shopping should be taken into consideration. For this reason, individuals experiencing stress and/or depression can be prevented from experiencing excessive online shopping or have their online shopping brought under control. On the other hand, stress and EUU

in Model-II influence hedonic shopping addiction, and hedonic shopping addiction influences or causes depression. Similarly, as a result of online shopping addiction and possibly because of shopping expenditures, personal or family conflicts are likely to occur. Therefore, in the process of treating an individual addicted to online shopping, counseling services for the families may be beneficial to the process.

TAM and its sub-dimensions of ease of use and usefulness play an important role in determining the attitudes of individuals towards the use of information and communication technologies (Legris et al., 2003). In this study, the theoretical assumptions of TAM have been found to parallel online shopping. Pleasure's positive relationship with customer satisfaction and online shopping has also been revealed. Pleasure's relation to online shopping constitutes the basic emotion in hedonic shopping addiction, and EUU (a variable of TAM) leads to hedonic shopping addiction. Within the context of online shopping, perceived usefulness positively influences the future intention to shop (Tong, 2010). The findings reveal strong relationships between perceived ease of use and usefulness in online shopping (Van der Heijden, 2003; Venkatesh & Davis, 2000). Based on this finding, one can state that perceived usefulness and ease of use positively influence online shopping. According to a qualitative study carried out over in-depth interviews with 25 university students, the main factors affecting online shopping are: availability, variety, trust, comparison, promotions, customer service, convenience, perceived ease of use, attitudes, low prices, and time (Jadhav & Khanna, 2016).

Online shopping can cause individuals to experience changes in real-world shopping. In real-world shopping, individuals can stop shopping by recognizing how many products they've bought, how much money they have in their wallet, how long they've wandered around while shopping, and whether they've gotten tired or not. However, no such external inhibitors exist in online shopping. Because individuals shop without going anywhere, they may not be aware of the number of products they've bought or their total (credit card) expenditures. In addition, because they don't get physically tired, they may not recognize how much time they've allocated to shopping. Without these factors, individuals focus more on pleasure while online shopping. As a result, this can cause individuals to shop more. In this respect, online shopping addiction is influenced not only by the structure of the Internet but also by user-related variables, and these two main factors should be considered together for preventing and treating addiction.

**Limitations and Future Studies**

This study has several limitations related to the research sample and the application of the measurement tools. Within the scope of the research purposes is a need for individuals who frequently shop online. Because the number of individuals who shop online is quite low in Turkish society, data was collected using the snowball sampling method. For this reason, the data collection process was quite time-consuming. One of the most important

keys to understanding human behavior is the concept of culture (Nadler, 2002). Having similar studies conducted with individuals from different cultures is recommended based on the assumption that culture can influence individuals' shopping attitudes and behaviors.

This study takes into account the concepts of ease of use and usefulness together (in a single measurement tool) within the scope of the research purposes. The role of these two variables in online shopping addiction can additionally be examined within the scope of different models and research purposes. In order to determine the variances that the models failed to explain in this study, other variables not included in the present study can be examined in future studies.

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